



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/805,990	03/14/2001	David A. Engler	M507.12-0017	3800

32692 7590 03/13/2003

3M INNOVATIVE PROPERTIES COMPANY
PO BOX 33427
ST. PAUL, MN 55133-3427

EXAMINER

ZAMANI, ALI A

ART UNIT	PAPER NUMBER
----------	--------------

2674

DATE MAILED: 03/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/805,990

Applicant(s)

ENGLER ET AL.

Examiner

Ali A. Zamani

Art Unit

2674

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-11,15-17,19,24-29 and 31-39 is/are rejected.
- 7) ☒ Claim(s) 2,12-14,18,20,21,23,30,40 and 41 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 & 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-11, 15-17, 19, 22, 24-29 and 31-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sheridan (US Pat. No. 5,917,646) in view of Richley et al. (US Pat. No. 6,348,908 B1).

In regard to claims 1, 3-11, 15-17, 19, 22, 24-29 and 31-39, Sheridan teaches a structure to interact with electromagnetic wave by changing optical aspect in selected areas in response to an external signal, the structure comprising: a plurality of optically anisotropic responsive elements (11, 13), each responsive element capable of presenting at least two different optical aspects (see Fig. 1, col. 4, lines 53-60) and changing between the optical aspects based on an external signal (see col. 4, line 51); a support substrate containing the responsive elements (22), the support substrate having a surface which define receiving position for the responsive elements; and an array of transparent lenses (27), at least a part of each lens being in direct contact with a receiving position on the surface structure of the support substrate such that the receiving position at least in part inherently defines the lens shape and location. Sheridan also teaches the rotatable lenses can be built from transparent spheres, such as glass, plastic, or epoxy spheres or (thin film overcoat on a spherical lens ball) and the sphere acts like a converging lens (col. 5, lines 57-64). Furthermore, rotating-particle display in which each rotatable particle (e.g.,

Art Unit: 2674

spherical ball) in the display acts as a lens wherein the particles are speroidal balls (col. 23, line 36). Sheridan further teaches a support substrate (120) which is three-dimensional cutaway view (see Fig. 12A-12B) and contains a geometrically regular transparent front and rear surfaces (125, 126) and contains a geometrically regular array of uniform cavities (123) where spherical lens balls (121) occupy cavities (123) and each ball (121) acquires an electrical dipole moment when immersed in the dielectric fluid that fills cavities (123) (see Fig. 12C). Sheridan further teaches that the incident light that encounters a rotating-particle display need not be restricted to visible light and the incident light can be, infrared light or ultraviolet light, and such light can be modulated by the gyricon (col. 22, lines 15-18). Sheridan substantially teaches the above claimed limitations except for teaching a “display particle capable of presenting at least two different optical aspects and changing between the optical aspects based on an applied electromagnetic field”. However, Richley et al. teach a visual displays that more particularly, paper-like, gyricon or twisting-particle (rotating-particles) which uses energy sources as electromagnetic radiations, sound, electromagnetic fields, mechanical vibration or displacement, or any other measurable form of energy that can be collected and converted into electrical energy to provide the necessary driving signals for applying an electric to the display (400) (see Fig. 4, col. 6, lines 12-22). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teaching of Richley et al. in the display of Sheridan in order to provide a display use optically anisotropic particles that are selectively rotatable to communicate visual information.

Claims 2, 12-13, 14, 18, 20-21, 23, 30 and 40-41 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 2674

The prior art does not teach a structure to interact with electromagnetic waves by changing optical aspect in selected areas response to an external signal, the structure comprising: a plurality of optically anisotropic responsive elements each responsive element capable of presenting at least two different optical aspects and changing between the optical aspects based on an applied external signal; a support substrate; an array of transparent lenses wherein the external signal is an electromagnetic fields; and wherein each lenses enlarges images of at least a portion of the responsive element or elements positioned below the lens by reflecting the light reflected therefrom and further comprising a top cover laid across the supporting structure and the responsive element contained therein, the top cover being transparent and non-reflective.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ali Zamani whose telephone number is (703) 308-6414. The examiner can normally be reached on Monday through Friday from 8:00 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard A. Hjerpe, can be reached on (703) 305-4709.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, DC 20231

or faxed to:

Art Unit: 2674

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding
should be directed to the Technology Center 2600 Customer Service Office whose telephone
number is (703) 306-0377.

Ali Zamani

March 7, 2003



RICHARD HJERPE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600